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I. Introduction

This Conservation Agreement, Assessment and Strategy presents the existing data available for *Yermo xanthocephalus* (commonly known as desert yellowhead), a U.S. Fish and Wildlife Service (FWS) proposed threatened species. The biology of the species, including description, distribution and habitat, are discussed within the existing environmental setting. Land uses and impacts from past and current threats and current protection mechanisms available to *Yermo xanthocephalus* are evaluated. While our current understanding of the ecology, biology, and management needs of *Yermo xanthocephalus* is incomplete, this document has been developed using all available data and provides the initial direction for conservation until more information is available. This document applies management to the only known existing population of *Yermo xanthocephalus*, but will be extended to any other populations of *Yermo xanthocephalus* that may be found on lands administered by the Lander Field Office, BLM, in Wyoming. If found in other areas of the state, this Conservation Agreement could serve as a foundation for other agreements.

II. Purpose

The goal of this Conservation Agreement, Assessment and Strategy is to identify specific actions that will contribute to reducing threats and provide for the long-term conservation of *Yermo xanthocephalus*.

III. Authority

A. Involved Parties

1. USDI, Bureau of Land Management (BLM)
2. USDI, Fish and Wildlife Service (FWS)

B. Authorities

Federal Land Policy and Management Act (43 U.S.C. 1701-1782) P.L. 98-450 (98 STAT 2718).

The Endangered Species Act of 1973, as amended, Section 2, establishes the Act's purpose to "...provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved..." Section 5 directs the Secretary of the Interior to "...establish and implement a program to conserve fish, wildlife and plants..."

Bureau of Land Management Manual 6840 provides guidance for the conservation of Special Status Species and the habitats on which they depend. Conservation "means the use of all methods and procedures which are necessary to bring such species and their habitats to the point at which the provisions of the ESA are not necessary, or there is no longer any threat to the continued existence of the other categories of Special Status Species."

The national interagency Memorandum of Understanding (MOU) for the conservation of species tending towards federal listing issued on January 25, 1994 (94-SMU-058) provides the general framework for cooperation and participation among cooperators in the conservation of species.

The parties to this agreement recognize that they each have specific statutory responsibilities that cannot be delegated, particularly with respect to the management and conservation of

wildlife and plants, their habitat and the management and development of water resources. Nothing in this agreement or the strategy is intended to abrogate the parties' respective responsibilities.

IV. Agreement Term

This Agreement shall be effective as of the date of the last approving signature and shall remain in force indefinitely. The *Yermo xanthocephalus* Conservation Agreement and Strategy will be reviewed by the FWS and BLM yearly after the last signature's date to determine if it needs to be revised.

V. Procedural Provisions

This Agreement may be modified or amended as necessary by the mutual consent of both parties, by the issuance of a written modification, signed and dated by both parties. This Agreement may be terminated by either BLM or FWS with a 60 day written notice to the other party.

If this conservation agreement and strategy precludes or removes the need to list *Yermo xanthocephalus* as threatened or endangered under the Act, FWS will monitor the status of *Yermo xanthocephalus* and the progress in implementation of the conservation agreement and strategy. If there is (1) insufficient progress in implementation of the conservation effort; (2) insufficient success in achieving objectives; (3) a failure to modify the conservation effort to adequately address a new threat or an increase in the severity of a threat, or; (4) an inability to address a threat, FWS will evaluate the status of *Yermo xanthocephalus* and consider initiating the listing process. Initiating the listing process may consist of designating the species as a candidate and assigning a listing priority, issuing a proposed rule to list, or issuing an emergency listing rule.

This Agreement is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties of this agreement will be handled by each individual agency and administrative unit in accordance with applicable laws, regulations, and procedures.

The participants shall comply with all federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352), which prohibits discrimination on the basis of race, color, handicap, or national origin; (b) Title IX of the Education amendments of 1972, as amended (20 U.S.C. 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex.

The Federal Government's liability shall be governed by the provisions of the federal Tort Claims Act (28 U.S.C. 2671-80).

VI. Conservation Assessment

A. Legal Status

Yermo xanthocephalus was designated as a Category 2 (C2) candidate for listing under the Endangered Species Act (ESA) by the FWS (USDI 1993). *Yermo xanthocephalus* remained a C2 species until February 1996, when the FWS changed its official designations for candidate species. *Yermo xanthocephalus* was officially classified as a Candidate species, Priority 1, by the FWS on September 19, 1997. On Feb. 5, 1998, a Formal Intent to Sue for Violation of

the Endangered Species Act Related to the Petition to List the Desert Yellowhead was received by the FWS from Biodiversity Legal Foundation and Biodiversity Associates. The FWS notified the plaintiffs that a proposed rule for listing *Yermo xanthocephalus* was being prepared. On December 22, 1998, a proposed rule for listing the plant as threatened was published in the Federal Register (USDI 1998). In January 2000 the FWS decided to postpone making a decision to list pending this Agreement.

B. Nomenclature and Description

Yermo xanthocephalus belongs to the Asteraceae (Sunflower) family and is the only extant species known from this genus (Dorn 1991). Dorn considers the genus *Yermo* to be most closely related to species of *Cacalia* Section *Conophora* (especially *Cacalia plantaginea*) in the tribe Senecioneae. *Cacalia* species differ in having green involucre bracts, fibrous or fleshy-fibrous roots, and whitish flowers and occur in wet habitats of eastern and mid-western North America, more than 100 km east of the known habitat of *Yermo*. Rayless *Senecio* species such as *S. hydrophilus* and *S. rapifolius*, superficially resemble *Yermo* but can be distinguished by their more numerous green involucre bracts (Fertig et al. 1994).

Yermo xanthocephalus is a tap-rooted, glabrous perennial herb with leafy stems to 12 inches (30 cm) high. The leathery leaves are alternate, lance-shaped to oval, 1½-10 inches (4-25 cm) long, and often folded along the mid-vein. Leaf edges are smooth or toothed. Flower heads are numerous (25-80) and crowded at the top of the erect stem. Each head contains 4-6 yellow disk flowers (ray flowers are absent) surrounded by five yellow, keeled involucre bracts. The pappus consists of numerous white bristles (Dorn 1991, 1992; Fertig et al. 1994).

C. Distribution, Population Biology and Demography

Yermo xanthocephalus was first found in the Beaver Rim area of central Wyoming, Fremont County, in 1990 by botanist Bob Dorn (Map 1). The entire known range of the species occupies an area of less than six acres (2.4 hectares (ha)). The type locality is the only known population. This population consists of one large subpopulation at the base of Cedar Rim and two smaller subpopulations associated with low sandstone and conglomerate hills less than .25 mile (0.4 kilometers (km)) to the south.

No information is available on the historic abundance of *Yermo xanthocephalus*. Dorn (1991) suggested that Cedar Rim might be the last refugium for an ancient species heading towards extinction naturally.

Surveys for *Yermo xanthocephalus* have, so far, failed to find additional populations. Surveys since 1990 have focused on outcrops of the Split Rock, White River, Wagon Bed and Wind River formations along Cedar Rim and Beaver Rim in southern Fremont County, Wyoming. Intensive surveys covered the area from the north bank of the Sweetwater River north to Oil Mountain and Sand Draw. In 1997, the east half of Beaver Rim and areas around Split Rock in Fremont County were searched (Fertig 1998, personal communication). Areas further from Cedar Rim have also been searched, such as Bates Hole in Carbon and Natrona Counties, Wyoming (Fertig 1998, personal communication; R. Scott 1998, personal communication).

Dorn (1991) estimated the total population of *Yermo xanthocephalus* to be approximately 500 plants when he first discovered it in 1990. In 1994, the Rawlins District and Wyoming State Office of the BLM contracted on a cost-share basis with the Nature Conservancy's Wyoming Natural Diversity Database (WYNDD) to conduct field surveys for *Yermo xanthocephalus* on public lands in central Wyoming (Fertig 1995). A permanent monitoring plot was established and baseline demographic and population trend data were collected. The plot consisted of a single belt transect 1 meter (m) x 40 m long, subdivided into 40 1 m x 1 m cells. Within each cell, individual plants were mapped and assigned to one of four age classes: seedling (stemless plants with a single rosette of 1-2 leaves), reproductive (in flower or fruit), vegetative (stemless plants with two or more rosettes and three or more leaves), and dead. The number of rosettes per plant was also tallied. This technique generated quantitative data on population size, density, age distribution and reproductive potential. The plot was established in one of the smaller subpopulations, not in the larger, denser main population. The density of plants in 1994 was determined to be 0.4 plants per square meter at the monitoring plot. The entire population was estimated at 1500 plants in 1994, three times higher than in 1990, although this likely reflects a more thorough survey effort rather than a population increase. The population was estimated to consist of about 31 percent flowering and fruiting plants, 25 percent seedlings, and 44 percent vegetative plants. Approximately one third of all plants in this population were observed to be in flower or fruit.

Dr. Richard Scott surveyed a monitoring grid in 1995. This grid was laid out in such a manner as to allow all plants in the *Yermo xanthocephalus* population to be counted. Plants were assigned to two classes: reproductive (in flower or fruit) or non-reproductive. The *Yermo xanthocephalus* population has been monitored using this method for three years and remains on-going. The total number of plants in 1995 was 9,293; in 1996 the number was 11,910, in 1997 12,099 plants and in 1998 11,635 plants were counted (R. Scott 1998, personal communication). The census was not conducted in 1999. Scott also established permanent quadrats to monitor phenology in 1993. They have been read and mapped once each year.

D. Reproductive Biology

Yermo xanthocephalus flowers from mid-June to late July. In wet years flowers may still be present as late as early August. Mature fruits have been observed on plants from mid July to early September (Fertig et. al. 1994; Rocky Mountain Herbarium records). Individual plants come into flower and fruit at different times of the year, extending the entire phenological period of the species (Dorn 1991).

Yermo xanthocephalus is a perennial that reproduces by seed. Seed dispersion is thought to be predominately by wind (R. Scott 1998, personal communication). Some seed dispersal may occur by water runoff, but it would be limited to the immediate area as there are no perennial streams at the single known *Yermo* site (Fertig, personal communication). Dorn (1991) suggested that total fruit production might be low due to heavy herbivory by insects or because of drought-induced abortion. Observations so far do not support that reproduction is necessarily low or that heavy herbivory by insects is the cause of low reproduction; drought-induced abortion has not been studied (R. Scott 1998, personal

communication). Establishment is probably episodic and dependent on suitable spring and summer moisture conditions.

Mature individuals of *Yermo xanthocephalus* typically consist of clusters of rosettes from a branched subterranean root crown. Plants also reproduce vegetatively by differential survival of rosettes. It is also possible that neighboring plants may be joined below ground by deep rhizomes, although such structures have not been observed in herbarium specimens or in the field (Fertig 1995).

Yermo xanthocephalus is probably pollinated by visually-oriented insects attracted to its bright yellow disk flowers and involucre bracts (Dorn 1991). The identity of these pollinators, however, is not known at present, but some collections of insects have been made and are awaiting identification (R. Scott, personal communication).

The germination requirements of seeds are currently being explored. *Yermo xanthocephalus* seeds germinate in the fall. Several germination experiments have been conducted by Dr. Richard Scott. The first was a rather informal test in which some soil was taken from the Yermo site and seeds were planted in the pots. Germination was very poor. In the next attempt seeds were put in Erlenmeyer flasks filled with water and aerated with aquarium aerators. Scott got very good success with this method (R. Scott 1998, personal communication).

In 1997, Jim Locklear of the Nebraska Statewide Arboretum of the University of Nebraska collected about 100 achenes of *Yermo xanthocephalus* for its seed bank, as part of the Native Plant Conservation Initiative.

It is unknown whether *Yermo xanthocephalus* hybridizes with any other species. One theory suggests that *Yermo xanthocephalus* might be an allopolyploid species.

E. Habitat and Ecology

Yermo xanthocephalus occurs in sparsely vegetated cushion plant communities with scattered clumps of Indian ricegrass (*Oryzopsis hymenoides*). It is typically absent from surrounding areas dominated by Wyoming big sagebrush (*Artemisia tridentata* var. *wyominensis*), bluebunch wheatgrass (*Elymus spicatus*), and needle-and-thread (*Stipa comata*) (Fertig 1995). *Yermo xanthocephalus* is occasionally found in beds of seldom used two-tracks or animal trails where suitable soils are exposed.

Other species frequently associated with *Yermo xanthocephalus* include: *Arenaria hookeri* (Hooker's sandwort), *Astragalus kentrophyta* (thistle milkvetch), *Cirsium aridum* (Cedar Rim thistle), *Crypantha caespitosa* (Caespitose cat's-eye), *Eriogonum brevicaulis* var. *micranthum* (shortstem wild buckwheat), *Eriogonum ovalifolium* var. *Purpureum* (cushion wild buckwheat), *Haplopappus armerioides* (thrift goldenweed), *Haplopappus nuttallii* (Nuttall's goldenweed), *Hymenoxys acaulis* (stemless hymenoxys), *Ivesia gordonii* (Gordon's ivesia), *Linum lewisii* (blue flax), *Lomatium nuttallii* (Nuttall's biscuitroot), *Lupinus argenteus* (silvery lupine), *Oryzopsis contracta* (contracted Indian ricegrass), *Oryzopsis hymenoides* (Indian ricegrass), *Phlox muscoides* (squarestem phlox), *Phlox pungens* (Beaver Rim phlox), *Physaria*

eburniflora (Devil's Gate twinpod), *Senecio canus* (woolly groundsel), *Thermopsis rhombifolia* (round-leaved goldenpea), and *Townsendia spathulata* (sword-leaf Easter daisy). Although Wyoming BLM does not have a formal, official list of plants it considers Sensitive, informally BLM considers *Cirsium aridum*, *Phlox pungens* and *Physaria eburniflora* to be Sensitive and worthy of protection from disturbance.

Dr. Richard Scott (1998, personal communication) has sampled about 100 square meter quadrats and has analyzed distribution patterns relative to *Yermo xanthocephalus* and big sagebrush.

Yermo xanthocephalus occurs on low slopes, rim margins, colluvial fans, and bottoms with deflation hollows. These hollows have developed on sites lacking an erosional lag surface (desert pavement) and with low vegetative cover exposed to strong winds (Bynum 1993). The shape and orientation of the hollows allow wind-blown snow to accumulate moisture in this desert region. *Yermo xanthocephalus* has not been found at other sites in the Beaver Rim with favorable substrates that lacked the appropriate topographical relief.

The elevation of known *Yermo xanthocephalus* habitat ranges from 6,720 to 6,760 feet (2,050-2,060 m).

Yermo xanthocephalus grows in shallow, loamy soils of the Entisol order that can be classified as a coarse-loamy over sandy-skeletal, mixed, Lithic Torriorthent. These soils contrast with the deep, sandy-loam aridisols occupied by adjacent Wyoming big sagebrush grassland communities (Bynum 1993). A third order (reconnaissance level) soil survey published by the USDA Soil Conservation Service (USDA 1993) describes the soil unit at this site as being Cragosen-Rock outcrop-Carmody complex, hilly. Appendix 1 gives more information about this soil unit. Soils utilized by *Yermo xanthocephalus* are likely to be of recent origin as indicated by the lack of diagnostic subsurface horizons. Topsoils have little organic matter and subsurface layers show no accumulation of humus, clay, gypsum, salts, or carbonates. The weak soil development at these sites is probably the result of limited moisture, frigid soil temperatures, and landscape instability caused by wind erosion (Bynum 1993). These soils can be extremely dry and brick-like in consistency in late summer, but are moist below the surface in the spring (R. Scott 1998, personal communication).

Soils on the south end of Cedar Rim are derived from outcrops of the Miocene-age Split Rock formation (Love 1961; Van Houten 1964). This formation is composed primarily of porous, fine to coarse textured, whitish or tan sandstones and clays. The Split Rock formation forms a persistent cliff at the top of Beaver Rim, but is mostly buried elsewhere in the Sweetwater Plateau (Van Houten 1964). *Yermo xanthocephalus* has not been documented on similar Tertiary sandstone outcrops of the Oligocene White River, Eocene Wagon Bed, or Eocene Wind River formations in the Beaver Rim area.

Average annual precipitation in the Cedar Rim area is 10 inches (254 millimeters), with peak levels from April to June. Mean annual temperature is 44°F (6.7°C), with mean maximum and minimum temperatures in January of 34° and 10°F (1.1° and 12.2°C) and mean maximum and minimum temperatures in July of 86° and 54°F (30° and 12.2°C) (Martner 1986). A climate station is maintained at Sand Draw, approximately 9 air miles north of the *Yermo xanthocephalus*

occurrence at the south end of Cedar Rim.

In 1994, Dr. Richard Scott established a climate station at the south end of Cedar Rim specifically to record local climate data for the population of *Yermo xanthocephalus* and other rare plants at this site. This climate station is currently gathering hourly data on precipitation, air temperature, soil temperature (at depths of 3.9 and 7.9 inches (10 and 20 centimeters)), relative humidity, wind speed, and solar radiation.

Cedar Rim is approximately 800 feet (243.8 m) higher than the Sand Draw climate station and is thus cooler and may have higher precipitation. The bowl-like topographic relief of the *Yermo xanthocephalus* habitat captures wind-drifted snow and accumulates run-off from surrounding areas, making these sites more mesic than precipitation data alone might predict. Several more years of local climate data and additional data from surrounding areas are needed to determine the differences in the microclimate between *Yermo xanthocephalus* habitat and surrounding areas (R. Scott 1998, personal communication).

Colonies of *Yermo xanthocephalus* occur on barren or semi-barren sites with total vegetative cover of less than 25 percent. The absence of competing vegetation suggests that *Yermo xanthocephalus* may be intolerant of competition, although it is equally plausible that other species are poorly adapted to these microhabitats (Fertig 1995).

F. Threats, Land Use and Habitat Modification

Low population size and a small geographic range make *Yermo xanthocephalus* extremely vulnerable to extinction from habitat degradation and chance natural events.

Leaves and stems of *Yermo xanthocephalus* show little evidence of herbivory by native grazers or livestock (Fertig 1995; R. Scott 1998, personal communication). Flower buds, flowers, and fruits have been observed with some damage from insect grazers. Dorn (1991) thought that insect herbivory might have a significant negative impact on the production of viable fruit, but monitoring by Scott, (1998, personal communication) so far, suggests only minor impacts.

The *Yermo* population is in the Big Pasture grazing allotment and the Dishpan Butte Wild Horse Herd Area. The nearest water source in the allotment is about 2.5 miles (4 km) from the population. Cattle and horses move through the area on trails as they graze within the area. Some of these trails have *Yermo xanthocephalus* plants growing in them, although these trails are on the periphery of the habitat where Wyoming big sagebrush and wheatgrasses are dominant. These trails may be providing microhabitat for *Yermo xanthocephalus* by acting as funnels for moisture or by providing exposed soil. Some trampling of individual plants (and transect markers) by animals is occurring. The overall impact of trampling/trailing on the population as a whole is not known.

Oil and gas exploration in the Beaver Rim area is a potential threat to *Yermo xanthocephalus* habitat. An abandoned oil well is located about 0.33 mile (0.5 km) to the north of the *Yermo xanthocephalus* site. It was drilled in 1952, but was a dry hole, so it was plugged and abandoned in 1953 (USDI BLM 2000). There is some low potential, with today's improved technology and economic

situation, that the oil and gas lessee would want to re-enter this site and drill. The abandoned access road to the well goes through the middle of the *Yermo* site. Some plants are present in the roadbed. The access road is of two-track quality, and has an un-gated fence across it at its junction with the Sand Draw Highway (State Highway 135). Numerous old seismic two-tracks also crisscross the vicinity of the *Yermo* site.

The Lander Resource Management Plan Record of Decision (USDI BLM 1987) provides for protection of species proposed as threatened or endangered, such as *Yermo*, with a no-surface occupancy restriction. More recently, BLM has applied Controlled Surface Use stipulations to oil and gas lease parcels up for renewal, prior to their sale, that appear to be in potential *Yermo* habitat or in close proximity to the *Yermo* site. This stipulation gives the Authorized Officer (usually the Field Manager) the authority to restrict or prohibit any activity unless the operator and BLM arrive at an acceptable plan for mitigation of anticipated impacts. Coordination, consultation or conferencing (whichever is appropriate) with the FWS would be done on any proposed activities on these and future leases, regardless of whether *Yermo* is listed or not.

In 1996 and 1997, two gas leases were issued to Cyanostar Energy, Incorporated. One of these leases encompasses the *Yermo* site, and the other involves sections a mile and more away from the site. The leases are issued for a term of 10 years or the life of production before coming up for renewal. In the summer of 1997, four Applications for Permit to Drill were received by the Lander Field Office, BLM, from Cyanostar Energy, Inc. Informal consultation was initiated with the FWS and the *Yermo xanthocephalus* site was inspected on August 11, 1997, by BLM employees, Mary Jennings of the FWS, and Dr. Richard Scott and Beverly Scott. Two of the wells that were located about six miles from the *Yermo* site were determined to not impact the plants. On Jan. 16, 1998, Permits to Drill were granted by BLM for these two gas wells located on the nearby lease. One well was a re-entry exploratory well and the second was located on a reclaimed, pre-existing well pad. Both sites had been previously disturbed by drilling activity. Both wells resulted in dry holes and were plugged and abandoned.

Mitigation was agreed upon for the other two wells. Mitigation included a seasonal restriction during the summer flowering/seed producing season and requiring a Pesticide Use Proposal for evaluation and approval for weed management. One well is proposed west of the Sand Draw Highway about 0.75 mile (1.2 km) from the *Yermo* site. The second well is proposed almost one mile (1.6 km) north of the site. At this time the Applications for Permit to Drill have been issued by the BLM but the wells have not been drilled.

Areas identified as having potential for the occurrence of locatable minerals include areas with current or past mining activity, areas where mining claims are located, areas where mineral occurrence has been proven from some type of activity, such as stratigraphic test holes, and areas where geologic formations are known to include locatable mineral occurrences, such as zeolite or uranium. On July 8, 1999 BLM filed a petition/application with the Assistant Secretary of the Department of the Interior to withdraw approximately 3,760 acres (Appendix 2) surrounding the *Yermo* site from settlement, sale, location, or

entry under the general land laws, including the mining laws, subject to valid existing rights. On August 9, 1999 a Federal Register Notice (USDI BLM 1999) was published giving notice of the withdrawal and giving the public the opportunity to request a public meeting to discuss the proposed withdrawal. A public meeting has been requested but a date for that meeting has not yet been set. The land will remain segregated for two years from the date of publication in the Federal Register, during which the BLM will prepare a mineral potential report, write an Environmental Assessment and request public input. A Decision Record will be issued which will be used to document if the application for withdrawal is denied, modified and approved or approved as submitted. If a decision is not made in the two-year period the application will be canceled. The proposed withdrawal area has had uranium claims staked in it, which were later abandoned. Zeolite occurrences are also present, but at such depths as to make the mining of these resources unprofitable in today's market. No mining claims are located within 2 miles (3.2 km) of the Yermo site (D. Larsen 1998, personal communication).

Salable minerals include such things as sand, gravel, shale, borrow and pumice. Available information suggests a low potential for the occurrence and development of salable minerals at this site. The disposal of salable minerals is discretionary by the Field Manager.

Other activities could have varying impacts on *Yermo xanthocephalus*. Sand Draw Highway is a paved road located about 0.66 mile (1 km) to the west of the site. Cedar Rim Road, a BLM managed road, has Rights-of-Way (ROWs) to at least five different companies. It is a crowned and ditched road and is located approximately 1.25 miles (2 km) from the Yermo site. Other existing ROWs include a powerline, a telephone line, snowfence and a gas pipeline. These ROWs generally follow the Sand Draw Road, the old roadbed of Sand Draw Road before it was re-aligned, or the Cedar Rim Road. These are all located 0.66 mile (1 km) or more away from the *Yermo xanthocephalus* site. Dust or chemical contamination from maintenance activities along any of these ROWs and weed spraying along the highway could be detrimental. An easement on private land for a BLM fence is located about 0.5 mile (0.8 km) to the south.

Recreational use of two-track roads and off-road vehicle use is of concern. Numerous two-tracks (most are old seismic lines) are visible in an aerial photo of the area. Most receive little, if any, use because of an un-gated pasture fence 0.75 mile (1.2 km) to the south and the un-gated Sand Draw Highway fence to the west. These two-tracks wash out in places or are bisected by drainages, making them accessible only by four-wheel drive vehicles, at best. The best access to the *Yermo xanthocephalus* site is by a two-track trail that parallels the west face of Cedar Rim. This trail is not mapped on the most current 7.5' U.S. Geological Survey quadrangle maps. This trail has become more visible and well used in recent years from all of the vehicle traffic to the Yermo site. A small parking spot has developed in the sagebrush just before the trail enters and crosses the largest subpopulation of *Yermo xanthocephalus*. The trail visibly becomes poorer at this spot, which marks the intersection with the access road to the abandoned oil well. Some *Yermo xanthocephalus* plants are located in the roadbed. Any use of the trail beyond this point is probably from hunters in the fall or by an occasional ORV user. The threat from vehicle damage is greatest in the spring or summer when plants are

in flower or heavy with developing fruit, or when soils are wet. Late fall recreational use, such as during hunting season, is probably a lesser threat because the plants have already dispersed their fruits or are entering dormancy (Fertig 1996; R. Scott 1998, personal communication).

The introduction or invasion of weeds at the site is another potential impact. The introductions or invasions could occur from a multitude of sources, including seeds being wind carried from weed populations occurring along the highways and roads and seeds "hitchhiking" in on vehicles, livestock and wildlife. However, the harsh site currently seems to be a deterrent to weed invasion.

Wildfire is probably not a direct threat to *Yermo xanthocephalus*. The vegetation/litter at the immediate site is not dense enough to carry a fire. The most serious threat is the impact of fire-fighting equipment if a wild fire occurred in the thicker sagebrush stands adjacent to the *Yermo* population.

A field examination was held at the *Yermo* site on Aug. 6, 1998 to discuss management and strategies for this Conservation Agreement, Assessment and Strategy. In attendance were personnel from the Region 6 (Denver) and Wyoming (Cheyenne) FWS offices and the Wyoming State Office (Cheyenne), Rawlins and Lander Field Offices, BLM. Also attending were an employee from the Wyoming Natural Diversity Database (Laramie) and researchers Drs. Richard and Beverly Scott.

Roads and two-tracks were discussed at the site by the group and it was debated as to whether the site should be fenced. It was agreed that the *Yermo* site should not be fenced from a range management issue, as there is no significant evidence to indicate that grazing is negatively impacting *Yermo*. It was thought that cattle trailing might actually be causing some positive impacts to the population even if it impacted individual plants through trampling. The group discussed whether fencing was needed to control two-track or off-road vehicle use. If drift fencing or barriers were used to close roads but allow cattle movements they would have to be installed at multiple sites. The country is too flat to effectively use terrain as natural barriers. The group discovered from looking at aerial photographs that the area has a large density of old seismic line roads that could be used as access to the *Yermo* site. Four-wheel drive vehicles or ATVs could drive almost anywhere if they went off-road. The group could not identify a "pinch-point" where vehicle access could be effectively stopped. However, access by recreationists seems to be almost negligible at this time. The group concluded that rare, "just driving through on the existing trail" damage would probably be minimal to the total population. If someone wanted to vandalize the site a fence would not likely prevent them from doing so.

Table 1 shows a summary of the land uses, the potential impacts to the *Yermo* site, the proposed management actions, and the monitoring that is needed to evaluate the effectiveness of the mitigation.

VII. Conservation Strategy

A. Purpose (Conservation Objectives)

The purpose of this Conservation Strategy is to outline a framework for management actions which will provide for the

objective of long-term conservation of *Yermo xanthocephalus*. The short-term objectives are to protect the *Yermo* population by reducing immediate threats that inhibit growth, reproduction and seedling establishment, and contribute to mortality. The accomplishment of some long-term actions will require further National Environmental Policy Act (NEPA) analysis prior to full implementation of this Conservation Strategy.

B. Standards and Criteria

The following conservation standards and criteria define those essential components needed to understand the species' biology, ecology, genetics, restoration and management needs, as well as those specific administrative elements necessary to ensure long-term management continuity and commitment. These will be used, in part, to measure whether the conservation objectives have been accomplished.

1. Follow established formal land management policies and regulations which provide for long-term protection of *Yermo xanthocephalus*.
2. Conduct inventories for *Yermo* in areas with potential habitat.
3. Establish and conduct monitoring, biological, ecological and life history studies for the species.
4. Protect *Yermo xanthocephalus* from international trade and commercial exploitation.
5. Prevent and alleviate negative impacts of management actions.
6. Take reasonable measures to protect the lone population from decimation.

C. Conservation Actions

The conservation actions described within this section need to be implemented so that the conservation objectives are accomplished. Conservation actions are listed in a step-down format in which the broad categories of the conservation standards and criteria are stepped down to specific conservation actions.

1. Follow established public land management policies and regulations which provide for long-term protection of *Yermo xanthocephalus*.
 - 1A. Any actions taking place at the *Yermo* site will be coordinated with the FWS to ensure that *Yermo xanthocephalus* and its habitat are protected and to ensure compatibility with the objectives of this document. Future planning documents will take into account *Yermo xanthocephalus* and its habitat.
 - 1B. Any proposed action within potential habitat outside of the *Yermo* site will be inventoried and evaluated for *Yermo xanthocephalus* populations. If found on lands administered by Lander Field Office, this management plan will be extended to those populations and mitigation measures will be enacted to ensure protection of those populations. If

found in other areas of the state, this Conservation Agreement could serve as a foundation for other agreements.

1C. Effective August 9, 1999, the *Yermo* site and 3,760 acres surrounding the site were placed under a 2-year segregation from location and entry under the General Mining Act of 1872, and from settlement, sale, location and entry under the general land laws. An Environmental Assessment, with public review, will be conducted during this 2-year period to evaluate the application to withdraw the site and a to-be -determined buffer zone. If the application is approved the withdrawal would be for 50 years.

1D. Any monitoring or research activities by non-agency personnel will be tracked by a permit system or Cooperative Agreement to ensure that these activities do not negatively impact the population and to coordinate among various research activities.

1E. Enforce existing laws, regulations and land use decisions for the protection of *Yermo*. Train law enforcement personnel and field office personnel in identification of the plant and its habitat and their responsibilities regarding protection of plants and habitat.

1F. Do not feature this area in public information or recreational brochures.

2. Conduct inventories for *Yermo* in areas with potential habitat.

2A. A Geographic Information System (GIS) theme of potential *Yermo* habitat will be developed.

3. Establish and conduct monitoring, biological, ecological and life history studies for the species.

3A. Biological and ecological studies are needed to determine the factors controlling its distribution, abundance and its interaction within the ecosystem. Possible studies could include identifying *Yermo*'s pollinators, analyzing the chemical make-up of *Yermo* to find out why it does not seem to be palatable to herbivores, doing genetic studies to determine inbreeding, etc. Support the on-going monitoring study.

3B. A steering committee will be set up to suggest management practices and assist the BLM/FWS in directing research and studies augmenting our knowledge of *Yermo*. The steering committee will also help monitor the *Yermo* site for threats and changes in the population and its habitat. It is the steering committee's responsibility to monitor the progress towards achieving conservation actions and making sure they are done in a timely manner. It will also prioritize actions and investigate funding sources. However, actions that provide protection to *Yermo* and its habitat will receive highest priority. The steering committee will have at least one biologist/botanist from FWS and one biologist/botanist from BLM. Other members of the team will include only those members of the public or another agency with whom BLM and/or FWS has a Cooperative Agreement, MOU or permit dealing with researching,

inventory, monitoring or some other type of involvement that directly relates to the Yermo plant and its habitat. Appendix 3 shows the members of the steering committee as its membership will stand at the signing of the Agreement. The chairman position will serve for one year and will rotate among the members. The steering committee will write an annual report by March 1 and submit it to both BLM and FWS which summarizes the work done the previous year, assesses progress towards achieving conservation objectives and proposes work to be completed the next fiscal year.

4. Protect *Yermo xanthocephalus* from international trade and commercial exploitation.

4A. The FWS, Denver Regional Office will recommend the inclusion of *Yermo xanthocephalus* on the Appendices of The Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES import and export permits are required for international trade in Appendix I species, and permits generally are not allowed for primarily commercial shipments. By including the species on Appendix I of CITES, it will make the international export of plants of this species illegal, unless the proper permits are obtained from the FWS. No CITES permits should be issued for plants collected in the wild.

5. Prevent and alleviate negative impacts of management actions.

5A. Ungulate grazing and browsing: No mineral supplements will be placed on public lands within two miles of the Yermo site. No additional water sources for livestock will be developed on public lands within two miles of the Yermo site. No supplemental feed will be used on public lands in the Big Pasture allotment without written approval of the Authorized Officer. Any supplemental feed or bedding, such as straw, must be certified weed free before its use will be authorized. Livestock will not be intentionally herded or trailed through the Yermo site or within 0.25 mile (0.4 km) of the site.

5B. Weed management: The steering committee will monitor the site for weed invasions and will make recommendations to the BLM and FWS as to the actions it believes would be necessary to protect *Yermo xanthocephalus*. Chemical applications of pesticides and herbicides will be evaluated on a case-by-case basis prior to application for potential negative impacts on the species and its pollinators, and will be restricted if necessary. Biological control of weeds will be prohibited until the impacts of the control on *Yermo xanthocephalus* have been evaluated and have been shown not to negatively impact Yermo.

5C. Road management: Use on the existing access road and nearby two-tracks will be monitored by the steering committee using photo points. If the committee feels a problem is developing it will immediately make recommendations to the BLM and FWS for actions to alleviate the situation.

5D. Oil and gas leasing and exploration: The public lands encompassing the Yermo site are presently leased for oil and

gas. The Resource Management Plan provides for protection of species proposed as threatened or endangered, such as *Yermo*, with a no-surface occupancy restriction. At the time an Application for Permit to Drill (APD) is received, a Condition of Approval (COA) will be applied on the *Yermo* site, including a 0.25 mile (0.4 km) radius buffer around the actual plant site, prohibiting all surface disturbing activities. This COA will protect the actual plant site, potential habitat adjacent to the site, and some habitat for potential pollinators. Controlled Surface Use stipulations will continue to be applied to a buffer area around the *Yermo* site for new leases. Seasonal restrictions (COAs or stipulations) will be applied to the existing lease area and to new leases that fall within a buffer area that do not allow disturbance from April 15 to September 15 to reduce impacts to the plants and their potential pollinators during growth and flowering. The size of these buffer areas will be determined through the Environmental Assessment process after the Conservation Plan is signed, but at a minimum will include the *Yermo* site and a 0.25 mile (0.4 km) radius buffer. Off-road vehicular travel, including that used for geophysical exploration activities and surveying, will be prohibited within the buffer area. Explosives and blasting will also be prohibited at the *Yermo* site and a 0.25 mile (0.4 km) radius buffer around the actual plant site. Other restrictions and mitigation, such as dust abatement measures, will be applied on a case-by-case basis.

5E. Salable minerals: The disposal of salable minerals will be prohibited in a buffer area around the *Yermo* site. The size of this buffer area will be determined through the Environmental Assessment process after the Conservation Agreement, Assessment and Strategy is signed, but at a minimum will include the *Yermo* site and a 0.25 mile (0.4 km) buffer around the actual plant site.

5F. Rights-of-way and other surface disturbing activities: Rights-of-way and other surface disturbing activities will be analyzed on a case-by-case basis. No surface occupancy will be allowed on the plant site and for a 0.25 mile (0.4 km) buffer around the actual plant site. However, rights of way for scientific studies of *Yermo* may be approved if they are determined to have no negative impact by the steering committee, BLM and FWS. Other restrictions and mitigation, such as the seasonal restriction or dust abatement measures, could be applied to surface disturbing activities that could impact the *Yermo* population.

6. Take reasonable measures to protect the lone population from decimation.

6A. *Yermo* seeds will be collected and banked at several different sites across the country. These seeds will be used as insurance against catastrophic events that may extirpate the species, for biological studies and possible introduction into new habitat.

6B. Propagation techniques will be developed and be used if recovery of the population should become necessary.

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IX. Signatures

In Witness Whereof, the parties have caused this *Yermo xanthocephalus* Conservation Agreement, Assessment and Strategy to be executed as of the date of the last signature below:

Approved:

Mr. Ralph O. Morgenweck, Regional Director
USDI Fish and Wildlife Service, Mountain-Prairie Region
Denver, Colorado

Date

Mr. Al Pierson, State Director
USDI Bureau of Land Management, Wyoming State Office
Cheyenne, Wyoming

Date

Acreage Subject to Withdrawal Petition/Application for *Yermo xanthocephalus*

Location	Acres
T. 30N., R.095W., Sec. 02	
Lot 1	40.04
Lot 2	39.71
Lot 3	39.37
T. 31N., R.095W., Sec. 22	
SE4NE4	40.00
SE4SW4	40.00
SE4	160.00
Sec. 23	
All	640.00
Sec. 26	
All	640.00
Sec. 27	
All	640.00
Sec. 28	
E2E2	160.00
Sec. 33	
E2NE4	80.00
Sec. 34	
N2	320.00
N2SW4	80.00
SE4SW4	40.00
SE4	160.00
Sec. 35	
All	640.00
<hr/>	
TOTAL:	3759.12 acres

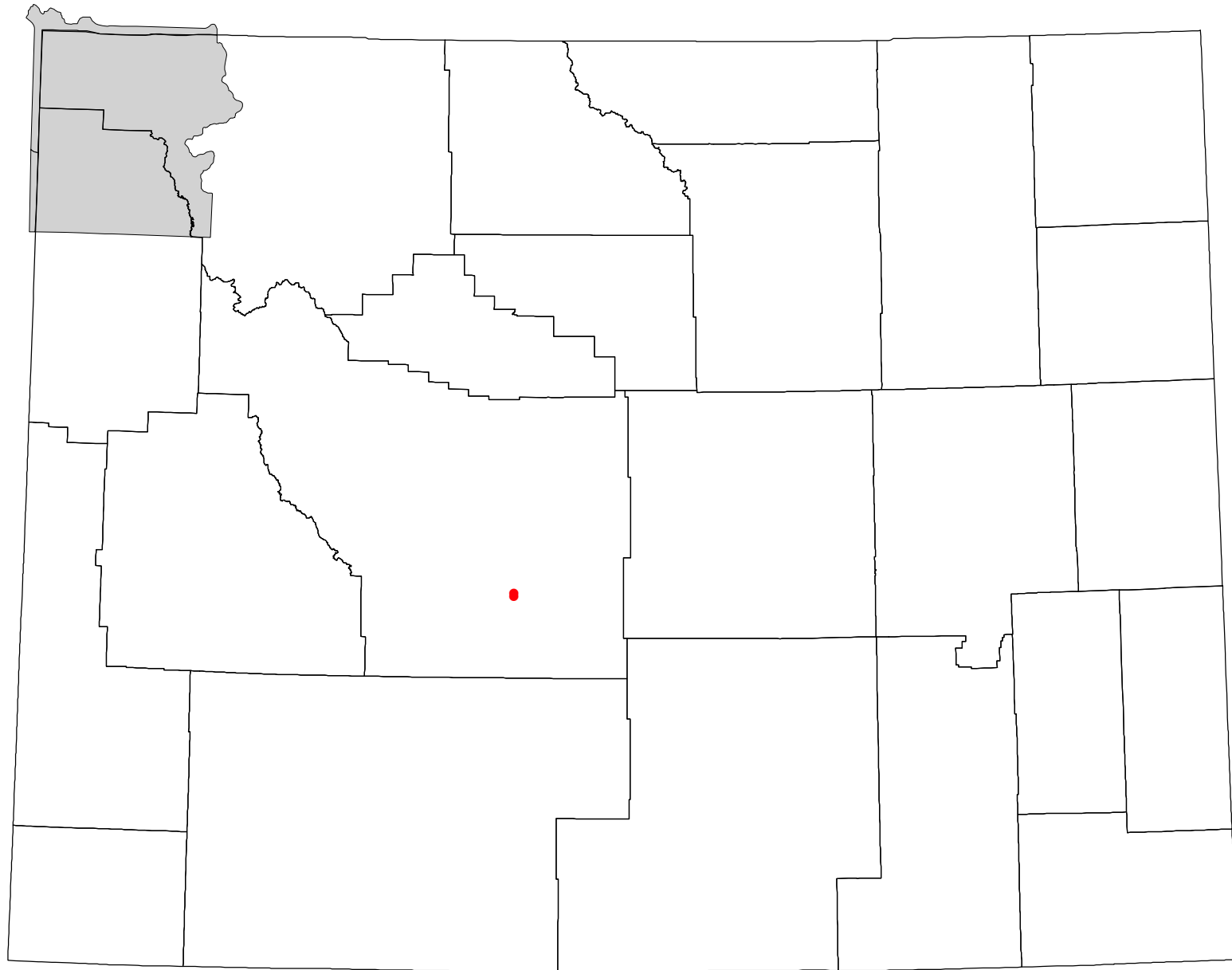
Membership of *Yermo xanthocephalus* steering committee:

FWS Biologist/Botanist
BLM Biologist/Botanist
Other interested parties

The following people will serve on the first committee:

Mary Jennings	FWS
Connie Breckenridge	BLM
Dr. Richard Scott	Central Wyoming College
Walt Fertig	Wyoming Natural Diversity Database

Yermo xanthocephalus



Atlas of the Vascular Flora of Wyoming
Copyright 1998 University of Wyoming, Rocky Mountain Herbarium
Base map courtesy of Wyoming Gap project; shaded area
is Yellowstone National Park

Plotted 10 Aug 1998
Absence should not be interpreted as meaning that the taxon is not present,
but only that there are no records at that particular locality. Also, not all known
records may be plotted here, due to ongoing data capture of the collections.
<http://www.rmh.uwyo.edu>

Table 1

Land Uses, Impacts to *Yermo xanthocephalus* and Proposed Mitigation

Land Use	Potential Impacts			Management Actions/ Mitigation
	Negative	Positive	Minor/ Unknown	
Livestock, wild horse and wildlife grazing	Trampling; weed introductions	Trail-making at low herd density	Grazing	Do not place mineral supplements or water developments within 2 miles of site. Weed-free hay\straw must be used. Intentional herding\trailing of livestock will be prohibited within ¼ mile of Yermo site.
ORV/Recreational use	Soil disturbance; weed introductions; physical disturbance to individual plants			The existing access road and two-tracks will be monitored by the steering committee to determine the amount of vehicle use the area receives. This area will not be featured in public information or recreational brochures.
Weeds	Competition with weeds; weed control measures if done improperly	Weed control measures if done carefully		Chemical applications of herbicides will be evaluated on a case-by-case basis prior to approval for use. Biological control of weeds is prohibited until the impacts of the control have been evaluated on Yermo.
Pests	Physical damage to plants; pest control could negatively impact pollinators	Pest control measures if done carefully		Chemical applications of pesticides will be evaluated on a case-by-case basis prior to approval for use.

Salable minerals	Increased vehicle activity; better access to plant site; actual surface disturbance at plant site which impacts individual plants; weed introductions; emissions problems		Dust	The disposal of salable minerals will be prohibited in a buffer area around the Yermo site. The size of this buffer area will be determined through the Environmental Assessment process after the Conservation Plan is signed, but at a minimum will include the Yermo site and a ¼ mile buffer around the actual plant site.
Oil and gas leasing and exploration	Increased vehicle activity; better access to plant site; actual surface disturbance at plant site which impacts individual plants; weed introductions; potential emissions problems		Dust	No surface occupancy COA will be applied on APDs and geophysical activities within ¼ mile of the Yermo site. Controlled Surface Use Stipulation will be applied to a buffer area around the Yermo site for new leases. Seasonal restrictions will be applied limiting activity from Apr. 15 - Sept. 15 on all leases within a buffer area around the Yermo site. Off-road vehicular travel, including that used for geophysical exploration activities and surveying, will be prohibited. Explosives and blasting will also be prohibited within ¼ mile of Yermo site. Other mitigation applied as needed.
Locatable minerals	Increased vehicle activity; better access to plant site; actual surface disturbance at plant site which impacts individual plants; weed introductions; emissions problems		Dust	Segregate from mineral location and patenting for two years, during which an EA on a 50-year withdrawal will be completed. The size of the final withdrawal will be decided through the EA process.
Rights of way, other surface disturbing activities, lands actions	Increased vehicle activity; better access to plant site; actual surface disturbance at plant site which impacts individual plants; weed introductions; emissions problems		Dust	No Surface Occupancy will be allowed within ¼ mile of Yermo site except for scientific studies approved by the steering committee. Other mitigation applied as needed. Withdraw from settlement, sale and entry under land laws.

Time Table for Conservation Actions

Conservation Action	Date Initiated	Target Completion Date	Completion Date	BLM's Time/Cost, subject to funding availability	Responsibility
1. Follow established land management policies and regulations which provide for long-term protection of <i>Yermo xanthocephalus</i> .					
A. Any actions taking place at the <i>Yermo</i> site will be coordinated with the FWS to ensure that <i>Yermo xanthocephalus</i> and its habitat are protected and to ensure compatibility with the objectives of this document. Future planning documents will take into account <i>Yermo xanthocephalus</i> and its habitat.	Ongoing	NA	NA	Too variable to determine.	BLM, FWS
B. Any proposed action within potential habitat outside of the <i>Yermo</i> site will be inventoried and evaluated for <i>Yermo xanthocephalus</i> populations. If found on lands administered by Lander Field Office, this management plan will be extended to those populations and mitigation measures will be enacted to ensure protection of those populations. If found in other areas of the state, this Conservation Agreement could serve as a foundation for other agreements.	Ongoing	NA	NA	Too variable to determine.	BLM
C. The <i>Yermo</i> site and an appropriate buffer area will be withdrawn from location and entry under the General Mining Act of 1872, and from settlement, sale, location and entry under the general land laws. (Develop Environmental Assessment and Mineral Assessment)	07/08/1999 Withdrawal Petition/application; 08/09/1999 Federal Register	08/09/2001		1 WM = \$4500 - 1999 2 WM = \$9000 - 2000 1 WM = \$4500 - 2001	BLM
D. Any monitoring or research activities by non-agency personnel will be tracked by a permit system or Cooperative Agreement to ensure that these activities do not negatively impact the population and to coordinate among various research activities.	Ongoing; Cooperative Agreement - Dr. Richard Scott - 2000	NA	NA	Too variable to determine.	BLM

Conservation Action	Date Initiated	Target Completion Date	Completion Date	BLM's Time/Cost, subject to funding availability	Responsibility
E. Enforce existing laws, regulations and land use decisions for the protection of <i>Yermo</i> .	Ongoing	NA	NA	Too variable to determine.	BLM, FWS
Train law enforcement personnel and field office personnel in identification of the plant and its habitat and their responsibilities regarding protection of plants and habitat.	Ongoing	NA	NA	2 days/yr = \$390	BLM
F. Do not feature this area in public information or recreational brochures.	Ongoing	NA	NA	None	BLM, FWS
2. Conduct inventories for <i>Yermo</i> in areas with potential habitat.					
A. A Geographic Information System (GIS) theme of potential <i>Yermo</i> habitat will be developed.	06/09/1999	2001		Supplies=\$720 - 1999 0.5 WM=\$2250 by 2001	BLM, steering committee
Inventory habitat for the presence of <i>Yermo</i> .	Ongoing	NA	NA	Surveys=\$5000 - 1999 Surveys=\$4000 - 2000 Surveys=\$4000 - 2001 Surveys=\$4000 - 2002	
Establish and conduct monitoring, biological, ecological and life history studies for the species.					
A. Support the on-going monitoring study.	1994	NA	On-going	0.25 WM=\$1100 - 1997 2 days - 1998 Supplies=\$2000 - 1999	BLM, FWS, steering committee
Biological and ecological studies are needed to determine the factors controlling <i>Yermo's</i> distribution, abundance and its interaction within the ecosystem.	On-going	NA	NA	Too variable to determine. As funding becomes available.	BLM, FWS, steering committee
B. A steering committee will be set up to suggest management practices and assist the BLM/FWS in directing research and studies augmenting our knowledge of <i>Yermo</i> .	When Agreement is signed.	NA	NA	0.25 WM=\$1100/yr	BLM, FWS, steering committee

Table 2 page 2 of 5

Conservation Action	Date Initiated	Target Completion Date	Completion Date	BLM's Time/Cost, subject to funding availability	Responsibility
4. Protect <i>Yermo xanthocephalus</i> from international trade and commercial exploitation.					
A. The FWS, Denver Regional Office will recommend the inclusion of <i>Yermo xanthocephalus</i> on the Appendices of The Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES).	2000	2000		None	FWS
5. Prevent and alleviate negative impacts of management actions.					
A. Ungulate grazing and browsing: No mineral supplements will be placed on public lands within two miles of the <i>Yermo</i> site. No additional water sources for livestock will be developed on public lands within two miles of the <i>Yermo</i> site. No supplemental feed will be used on public lands in the Big Pasture allotment without written approval of the Authorized Officer. Any supplemental feed or bedding, such as straw, must be certified weed free before its use will be authorized. Livestock will not be intentionally herded or trailed through the <i>Yermo</i> site or within 0.25 mile (0.4 km) of the site.	On-going	NA	NA	2 days/yr	BLM
B. Weed management: The steering committee will monitor the site for weed invasions and will make recommendations to the BLM and FWS as to the actions it believes would be necessary to protect <i>Yermo xanthocephalus</i> . Chemical applications of pesticides and herbicides within Lander Field Office will be evaluated on a case-by-case basis prior to application for potential negative impacts on the species and its pollinators, and will be restricted if necessary. Biological control of weeds will be prohibited until the impacts of the control on <i>Yermo xanthocephalus</i> have been evaluated and have been shown not to negatively impact <i>Yermo</i> .	Ongoing	NA	NA	3 days/yr	BLM, steering committee

Conservation Action	Date Initiated	Target Completion Date	Completion Date	BLM's Time/Cost, subject to funding availability	Responsibility
C. Road management: Use on the existing access road and nearby two-tracks will be monitored by the steering committee using photo points. If the committee feels a problem is developing it will immediately make recommendations to the BLM and FWS for actions to alleviate the situation.	1999	NA	NA	1 day/yr	BLM, steering committee
D. Oil and gas leasing and exploration: At the time an Application for Permit to Drill (APD) is received, a Condition of Approval (COA) will be applied on the Yermo site, including a 0.25 mile (0.4 km) radius buffer around the actual plant site, prohibiting all surface disturbing activities. Controlled Surface Use stipulations will continue to be applied to a buffer area around the Yermo site for new leases. Seasonal restrictions (COAs or stipulations) will be applied to the existing lease area and to new leases that fall within a buffer area that do not allow disturbance from April 15 to September 15 to reduce impacts to the plants and their pollinators during growth and flowering. The size of these buffer areas will be determined through the Environmental Assessment process after the Conservation Agreement is signed, but at a minimum will include the Yermo site and a 0.25 mile (0.4 km) radius buffer around the actual plant site. Off-road vehicular travel, including that used for geophysical exploration activities and surveying, will be prohibited. Explosives and blasting will also be prohibited at the Yermo site and a 0.25 mile (0.4 km) radius buffer around the actual plant site. Other restrictions and mitigation, such as dust abatement measures, will be applied on a case-by-case basis.	On-going On-going; Environmental Assessment WY050-EA9-021 for Cyanostar Energy On-going; 2001 On-going On-going	NA NA NA NA	NA NA NA NA	Too variable to determine. Too variable to determine. Same as 1.C. None Too variable to determine.	BLM BLM BLM BLM

Conservation Action	Date Initiated	Target Completion Date	Completion Date	BLM's Time/Cost, subject to funding availability	Responsibility
E. Salable minerals: The disposal of salable minerals will be prohibited in a buffer area around the <i>Yermo</i> site. The size of this buffer area will be determined through the Environmental Assessment process after the Conservation Agreement, Assessment and Strategy is signed, but at a minimum will include the <i>Yermo</i> site and a 0.25 mile (0.4 km) buffer around the actual plant site.	On-going; 2001	NA	NA	Same costs as 1.C.	BLM
F. Rights-of-way and other surface disturbing activities: Rights-of-way and other surface disturbing activities will be analyzed on a case-by-case basis. No surface occupancy will be allowed on the plant site and for a 0.25 mile (0.4 km) buffer around the actual plant site. However, rights of way for scientific studies of <i>Yermo</i> may be approved if they are determined to have no negative impact by the steering committee, BLM and FWS. Other restrictions and mitigation, such as the seasonal restriction or dust abatement measures, could be applied to surface disturbing activities that could impact the <i>Yermo</i> population.	Ongoing	NA	NA	Too variable to determine.	BLM
6. Take reasonable measures to protect the lone population from decimation.					
A. <i>Yermo</i> seeds will be collected and banked at the Nebraska State Arboretum at the University of Nebraska. Additional seed bank locations will be established to insure that a disaster does not destroy the banked seeds.	1997 2001	NA	NA	Studies=\$6000 - 2000 As funding becomes available.	
B. Propagation techniques will be developed and be used if recovery of the population should become necessary.	Ongoing; Dr. Richard Scott 1997	NA	NA	As funding becomes available.	